

DOCUMENT RESUME

ED 273 362

PS 015 987

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TITLE Interpersonal Relationships of Children and Adolescents: Symposium II B.
PUB DATE [84]
NOTE 30p.; In "Preparation for Adulthood. Third Asian Workshop on Child and Adolescent Development"; see PS 015 978.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adolescents; Age Differences; Buddhism; *Children; Competition; *Cooperation; Cultural Influences; Elementary Secondary Education; Ethnic Groups; Foreign Countries; *Interpersonal Relationship; Longitudinal Studies; *Peer Acceptance; Rural Urban Differences; Sex Differences
IDENTIFIERS *Australia; Chinese People; Islam; *Thailand

ABSTRACT

Reported in this symposium are (1) a study of interpersonal awareness, peer acceptance, and interpersonal strategies among Australian preschool children, by Norman F. Kafer, (2) a longitudinal study of the learning preferences of Australian primary and secondary school students, by Lee Owens, and (3) an abstract of an investigation of co-operative and competitive behavior among primary school children in Thai subcultural groups, by Pismai Wibulswadi. Results of the preschool study suggest that children may begin to develop defensive interpersonal strategies at a very early age and may also express feelings of vulnerability. The most highly vulnerable children tended to withdraw from interaction, and were avoidant and neglected by peers. Children who adopted an approach strategy and were rejected expressed less vulnerability. Both groups were more vulnerable than children accepted by peers. Among children least acceptable to their peers, those adopting an approach strategy were less developed in interpersonal awareness than those adopting an avoidance strategy. The longitudinal elementary/secondary study indicated that girls, in their primary school years, were more strongly oriented towards co-operative learning than boys were; the trend continued through high school. The senior years of high school and the preparation for the Higher School Certificate examinations (Year 12) somewhat dampened girls' enthusiasm. Boys lost their enthusiasm for co-operative learning at least 2 years earlier, coinciding with preparation for the School Certificate examination (Year 10). The study of primary school children's co-operative and competitive behavior revealed that Thai rural children appeared to be significantly more generous than semi-rural and urban children, and that Muslim children showed significantly more rivalry and competition than did Buddhist children. (RH)

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**SYMPOSIUM II B : Interpersonal Relationships
of Children and Adolescents**

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Interpersonal Awareness, Peer Acceptance and Interpersonal Strategies: a Study of Preschool Children

Norman F. Kafer

INTRODUCTION

This paper reports data from an ongoing research programme in which the behaviour and perceptions of children who fail to interact successfully with their peers are explored. They behave as though they have not yet acquired the friendship skills appropriate to their particular age level. Within the programme, differences between children who have been classified as neglected and rejected by their peers are examined. In so doing, it is argued (Kafer, 1982) that inappropriate behaviour can occur, not only because children are deficient in social skills but also because some have adopted defensive inter-personal strategies in response to a perceived inability to interact successfully with others. Such strategies are adopted as a means of avoiding failure in social situations. Thus, we see some children avoiding rejection by initiating fewer interactions, an avoidant strategy symptomatic of the neglected child. On the other hand, some children seemingly appear to misperceive and misinterpret the failure cues and continue to approach others even though their social overtures are ineffective, an approach strategy which can lead to further rejection. Avoidant and approach strategies, though obviously inappropriate, do serve a useful purpose for the child. Unfortunately, however, they can lead to the development of deficiencies in basic social skills (Kafer, 1981, 1983). As these strategies are learned, it is important to know at what stage of development children are capable of experiencing feelings of vulnerability in inter-personal relationships and feel the necessity to adopt defensive strategies.

As Kelvin (1977) has pointed out, a person's preferred level of vulnerability is an important organising principle in interpersonal interaction. Each person sets a limit on the degree of self disclosure that can be tolerated. Though any self disclosure can make the person vulnerable to interpersonal hurt, a high level of disclosure can be tolerated and even enhance a relationship if the risks are shared. That is, the two persons reveal equal amounts about themselves. The work of Selman (1981) suggests that when children begin to seek reciprocity (involving trust and mutual sharing) in their friendship expectations at about the age of six years, feelings of vulnerability would be related to a child's use of a defensive inter-personal strategy.

In a recent study (Shannon and Kafer, 1984), we examined this hypothesis and found that at the age of five and six years, children began to expect concepts of mutual sharing and trust to be a part of friendship and feel a belongingness to their peer world. Neglected children also included mutual sharing and trust in their friendship expectations but did not feel a similar belongingness. They were sensitive to the reactions of others and expressed feelings of vulnerability. The rejected child, on the other hand, though perceiving the importance of mutual sharing, did not regard trust as an important component of friendship. In addition, they did not perceive vulnerability as an issue and were not fully aware of their exclusion from the group. The data, however, did suggest that feeling of vulnerability rather than the acquisition of the concept trust which was the most important variable.

This study was designed to explore further the inter-relationships among the variables of:

- (1) the acquisition of the concept of trust;
- (2) the development of inter-personal awareness;
- (3) vulnerability, and
- (4) the adoption of defensive inter-personal strategies.

As the work of Selman (1981) suggests that children do not acquire the concept of trust before the age of five years, pre-school children were used in the study. Thus, the development of inter-personal awareness could also be examined by analysing the extent to which children's inter-personal interactions could be characterised by what Selman (1981) has described as here-and-now and one-way assistance expectations.

METHOD

A behaviour check list was used to select subjects into experimental group. Following this, each subject was asked to complete a short projective test and was finally interviewed.

Behaviour Check List

An inter-personal strategy of avoidant or approach was assessed by teachers' ratings on a Behaviour Check List which was adapted from Spence (1981). The check list contained 30 items, 18 of which were used in the present context, namely:

- Is the child bullied frequently?
- Is the child teased frequently?
- Does the child avoid contact with peers?
- Does the child find it hard or fail to talk to peers?
- Does the child find it hard or fail to initiate conversations with peers?
- Does the child find it hard or fail to ask others for help?
- Does the child find it hard or fail to ask others whether he/she can join in a game?
- Is the child verbally aggressive during conversations with peers?
- Does the child tease other children inappropriately?
- Is the child unpopular?
- Does the child fail to make friends with peers?
- Is the child ignored or neglected by his/her peers?
- Is the child actively rejected by his/her peers?
- Does the child talk too loudly?
- Does the child talk too softly?
- If rejected by others, does the child withdraw?
- If rejected by others, does the child continue to interact?
- Does the child have difficulty in keeping out of fights?

Teachers in two preschools completed the Behaviour Check List for 124 children (age range: 3 years 5 months to 4 years 11 months). This method was used to identify three groups:

- (1) avoidant, defined as those children who were rated as unpopular, withdrawn and neglected by their peers ($n = 25$);
- (2) approach, defined as those children who were rated as unpopular, showed inappropriate approach behaviours and were rejected by their peers ($n = 10$); and,
- (3) a randomly selected control group ($n = 35$).

Vulnerability

Two subtests of the projective test, *The Self-Other-Orientation Tasks* (SOOT) (Long, Henderson and Ziller, 1973) were used to assess level of vulnerability. These are inclusion and identification. The first of these, inclusion, measures the development of social boundaries and the location of the self within rather than outside a social field. A person low in inclusion perceives the self as being outside the social world and tends to

avoid intimate involvement. To measure the child's concept of inclusion, a series of circles are placed within and outside a social field. The subject is asked to nominate one of the circles to symbolise the self.

The second identification is related to the child's perception of the self as similar to significant others. To test for identification, a series of six circles are arranged horizontally on a page. The extreme left hand circle stands for a significant other (i.e. mother, father, teacher, friends) and the child is asked to nominate a circle representing the self. Identification is assessed by distance from the stimulus figure. To ensure validity, a number of extra test items from the SOOT were also included.

Reciprocity: Trust and Mutual Sharing

The interview approach developed by Selman (1981) and Selman and Jacquette (1977) was adapted and used to assess the extent to which the child used concepts of trust and whether relationships were described in terms of what Selman (1981) calls here-and-now or one-way assistance when describing relationships with an adult nominated by the child and with a friend. The basis of the interview lay in encouraging the child to elaborate on the following types of questions: 'Does ... trust you?' 'Tell me about a time when ... trusted you'. 'Do you trust ...?' 'Tell me about a time when you trusted ...?' 'What sort of things does ... do that please you?' 'What sort of things does ... do that make you angry?' 'What sort of things do you do that please...?' 'What sorts of things do you do that make ... angry?' A total of 53 children were interviewed: avoidant ($n = 15$); approach ($n = 8$); and control ($n = 30$).

RESULTS

The mean scores on the inclusion and identification subtests of the SOOT for each of the three groups are set out in Table 1.

Table 1
Mean Scores on Inclusion and Identification

Group	Inclusion	Identification			
		Mother	Father	Teacher	Friends
Avoidant	1.32	10.20	11.52	9.88	10.88
Approach	1.17	11.10	11.20	9.50	11.00
Control	2.06	11.34	12.03	10.66	11.63

One-way analysis of variance was used to examine for differences attributable to grouping for the inclusion and the three identification tests. A significant difference was found for inclusion ($F(2,67) = 5.84, p < .01$). No other results were significant. A Newman Keuls test was used to examine the nature of the significant difference attributable to the inclu-

sion task. The results showed that the means could be ordered on a continuum of increasing magnitude, namely, avoidant ($x = 1.32$); approach ($\bar{x} = 1.7$); and control ($\bar{x} = 2.06$).

In the analysis of the transcripts of the interview data, only those responses which were considered relevant were included. The results are as follows:

Trust

When asked about this, most children agreed that they trusted or were trusted by another. However, further questioning showed that only seven children could attempt to answer why or give an example of when trust occurred. One child showed a grasp of the concept when she answered that she knew her mother trusted her 'because she let me sleep at my friend's house', and she could trust her friend because 'she always comes and plays'. Two children trusted their parents because 'they were big'. The remaining four children equated trust with love and liking.

Relationships With Adults

When questioned about the nature of a positive relationship with an adult, the children focussed on how they pleased the other and described 'good or helping' behaviours. For example, 'good girl'; 'eat my tea and be good'; 'help mummy'; 'not suck my thumb'; 'don't fight'; 'help mummy pick up things'. The number of children within each group who have such answers were: control = 20; avoidant = 6; approach = 1.

A $2 \times 2 \times 2$ analysis of the difference between the control and the unpopular group in being able to describe a positive relationship was significant ($X^2 = 5.466$, $df\ 2$, $p < .05$). The answers about negative relationships with adults also centred on the child's behaviour rather than that of the adult and were concerned about 'bad' behaviour, viz., 'Sucking my thumb'; 'being naughty'; 'not helping'; 'pinching and smacking mummy'. Groupings were:

Control = 10; Avoidant = 6; Approach = 1

A $2 \times 2 \times 2$ analysis of the difference between the control and the unpopular group was not significant.

Relationships With Friends

Here, the answers fell into two distinct categories. The first of these reflected a here-and-now friendship stage in which 17 children saw 'playing with' another person as a basic positive relationship. Seven children, however, gave answers which suggested a one-way assistance stage e.g. 'do things for them'; 'make them laugh when I pull funny faces'; 'give me lollies'. A classification by group revealed the following:

Here-and-now: Control = 13; Avoidant = 3; Approach = 1

One-way assistance: Control = 6; Avoidant = 1; Approach = 0.

Cells were combined in order to compare differences between the control and the unpopular children in the ability to conceptualise a positive relationship with friends by a $2 \times 2 \chi^2$ analysis. Results were significant, $\chi^2 = 11.13$, $df 2$, $p < .01$.

Answers about negative relationships with friends also fell into the above two categories. Five children answered 'not playing'. However, thirteen children talked of a lack of a one-way assistance such as 'hit them'; 'break their things'; 'stamp on my feet and hit me'; 'take my things'; 'poke with sticks at them'. Classification by group showed:

Here-and-now: Control = 4; Avoidant = 0; Approach = 1

One-way assistance: Control = 8; Avoidant = 5; Approach = 0.

A χ^2 analysis of combined cells showed no significant difference between the control and the unpopular group in the ability to conceptualise a negative relationship with friends.

DISCUSSION

The results of this study have important implications for those who seek to assist children develop the skills of friendship. They suggest that a child may begin to develop defensive interpersonal strategies at a very early age. Entering a preschool environment could be a critical period in a child's social development. Though we know that in general, children begin to learn their social skills within the family, the pre-school environment provides a wide range of new social learning situations in which children can develop their social skills. If for some reason, however, children have not yet learned the basic skills necessary for interaction with their peers, then the preschool environment can also provide a large number of potential social failures situations.

It has been argued (Kafer, 1982) that continual social failure can lead to children adopting a defensive interpersonal strategy in order to minimise the effects of social failure, namely, avoidant or approach. In addition, it has been shown (Shannon and Kafer, 1984) that the adoption of an interpersonal strategy is related to a child's feelings of vulnerability. This study shows that such feelings of vulnerability are also expressed by the pre-school child. Children who expressed the highest degree of vulnerability were those who tended to withdraw from interaction with others, exhibited avoidant types of behaviour and were neglected by their peers. Children who adopted an approach strategy and were rejected expressed a comparatively lesser degree of vulnerability. Both groups, however, experienced a greater deal of vulnerability than those who were accepted by their peers.

It is interesting to note, however, that all children in the study were similar in the extent to which they identified themselves with relevance

to others such as mothers, fathers, teachers and peers. The results of the study also clarified, to some extent, the relationship between social acceptance and the development of interpersonal awareness. The acquisition of the concept of trust did not appear to be an important factor. However, the definition of what one seeks in a position relationship, whether it be with a significant adult or a peer, appeared to be important. Of the children interviewed, none appeared to have progressed beyond the here-and-now or one-way assistance stages outlined by Selman (1981). However, a comparatively larger number of children who were least acceptable to their peers did not appear to have reached either of these stages. Visual inspection of these data suggests that those children who had adopted an approach strategy were less developed in terms of interpersonal awareness than those who had adopted an avoidance strategy. Such a suggestion is congruent with the analysis of the vulnerability scores. Since the number of approach subjects interviewed was small, such a suggestion can only at this stage remain a hypothesis for further testing.

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Co-operative and Competitive Behaviour Among School Children in Subcultural Groups of Thailand**

Pismai Wibulswadi

Cultural factors such as religion, ethnicity and cultural changes due to exposure to modernisation seemed to have contributed to differences in generosity-rivalry and co-operative-competitive behaviours among children.

The objectives of this study were to:

- (1) Explore the differences in generosity-rivalry or co-operative-competitive behaviour among Thai children in rural, semi-rural and urban areas in Chiang Mai province, Northern Thailand.
- (2) Compare the differences in co-operative and competitive behaviour between boys and girls.
- (3) Examine the differences in generosity-rivalry or co-operative-competitive behaviour among children of three ethnic groups: Buddhist-Thai, Buddhist-Chinese and Muslim-Thai children.

The sample consisted of 120 schoolchildren (60 girls and 60 boys) who were randomly selected from primary schools in different areas of Chiang Mai and Krabi provinces. There were five subcultural groups of 24 subjects each: rural Thai, semi-rural Thai, urban Thai, Buddhist-Chinese in Chiang Mai and Muslim-Thai in Krabi.

A coin game was administered to the subjects of the five subcultural groups. The experiment consisted of ten cards on which circles were drawn. Each subject was offered the option of selecting either the left or right section to get the coin placed in the circles for himself and to give the other section to someone else. After the experiment, each child's choice was scored by categorising him into one of three possible behaviour patterns: generosity, self-maximisation or rivalry.

The chi-square method was used to analyse the data. The results obtained from the coin-game experiment indicated that rural Thai children performed significantly different in the experimental task than semi-rural and rural children. Thai rural children appeared to be significantly more generous than the other two subcultural groups ($p < .05$).

No significant differences in the degree of generosity-rivalry and co-operative-competitive behaviour were found between boys and girls in the total samples.

Buddhist-Thai children were slightly different from Buddhist-Chinese children in the degree of co-operation. However, when compared with those from the Muslim sample, both Buddhist samples were significantly different from the Muslim sample. Muslim children showed significantly more rivalry and competition in the coin-game experiment than did Buddhist children ($p < .01$).

The results were relatively consistent with previous psychological studies which demonstrated the profound cultural differences in the development of generosity-rivalry and co-operation-competition among children. The general social behaviour pattern that rural and non-western children performed more co-operatively in experimental tasks than did urban and Western children has been shown in many cross-cultural findings and these same findings have been supported in this study.

The findings tend to demonstrate that quite a few children show irrational competitive behaviour. This raises the question of the value of competition in future society and also suggests that the role of schools and teachers is to train children to co-operate in situations that require mutual assistance and compete in appropriate situations for the benefit of society.

Co-operation, Competition and Individualisation: a Longitudinal Study of the Learning Preferences of Australian Primary and Secondary School Students*

Lee Owens

INTRODUCTION

A decade ago, many educational psychologists were enthusiastically promoting the advantages of individualised learning. There were large-scale American programmes in operation called Individually Prescribed Instruction, Individually Guided Education, Personalised System of Instruction, and, notably, Mastery Learning. In the past ten years, however, attention has swung to methods of teaching that promote student interaction in the classroom. Such methods range from pairing students of different ages in a tutoring relationship (Bloom, 1976) to small groups of learners pursuing the common achievement of mutual goals by self-devised procedures (Johnson, 1980) and small groups mutually assisting members to learn set material in order to strive as a team to beat other team groups in achievement (Slavin, 1983). Co-operation and competition, therefore, have emerged as methods of using interaction among students to facilitate both the learning of subject matter and certain social skills and attitudes (Owens, in press).

BACKGROUND

Significant recent research has been conducted documenting the advantages and disadvantages of cooperation, competition, and individualisa-

*This paper is produced as part of the Co-operative, Competitive, and Individualised Learning in Education Project (CCILE). The CCILE Project was funded by the Education Research and Development Committee, Canberra, and has received the full co-operation of the Education Department of New South Wales. The author gratefully acknowledges the energetic research assistance of Jennifer Barnes in the various activities of the Project.

tion in classroom learning. A series of studies in Australia has concentrated on the attitudes and preferences expressed for these three learning modes by students, teachers, and parents. With regard to the learning preferences of students, a series of studies has shown:

- (1) In the range from Year 4 to Year 12,¹ girls generally express greater preference for co-operative learning than boys, and boys generally express greater preference for competition and individualisation (Owens and Straton, 1980; Owens, 1983b).
- (2) In general, preferences for competitive learning increase markedly with increasing year level and preferences for individualised learning decrease markedly with year level while preferences for co-operative learning show inconsistent trends (Owens and Straton, 1980; Owens, 1983b).
- (3) In secondary schools, students generally express stronger preferences for co-operative learning in English than in Mathematics, although boys prefer more competitive contact in learning Mathematics and girls prefer more competitive contact in learning English (Owens and Barnes, 1982).
- (4) When students with high co-operative learning preferences are compared with students with low co-operative learning preferences, their perceptions of classroom atmosphere contrast markedly in primary classes and secondary English classes, though not in secondary Mathematics classes (Owens and Barnes, 1982; Owens, 1983a).
- (5) The early years of secondary school (Years 7-8) coincide with markedly higher preferences for competitive learning by boys but not consistently by girls (Owens and Straton, 1980; Owens, 1983b).
- (6) The overall trends noted above characterise both Australian and American students but in direct comparison, American students have stronger preference for co-operative learning than Australian students, while the Australian students are more strongly in favour of competition and individualisation (Owens, 1983b).

In a broad sense, these findings are consistent with American data from a large survey of school districts in Minnesota (Johnson and Ahlgren, 1976; Johnson, Johnson and Anderson, 1978). These data, gathered on a schoolwide basis, show that co-operative attitudes are positively correlated with a pleasant regard for school personnel, intrinsic motivation, helpful attitudes toward peers, open expression of ideas and feelings, and self-esteem. Individualistic attitudes are negatively related to open expression of ideas, feelings and self-esteem while being unrelated to the remaining traits.

A limitation of the studies from which these Australian and American data have been obtained is the cross-sectional research design i.e. at the

same time, different subsamples of students were tested at each year level. In a time of rapid social change, the possibility exists that older students have had a different upbringing or educational experience than younger students, even though just a few years in age separate them. The findings may be confounded, therefore, by unidentified differences between groups of students other than simply year at school. To test this, a longitudinal design was employed in the present study to gather learning preference data from the same group of Sydney school students over an interval of two years. Significantly, the data-gathering spanned the crucial period of transfer from primary to secondary school and the two major examination years in secondary schooling in New South Wales.²

METHOD

Instrument

Preferences for co-operative, competitive and individualised learning modes were obtained by means of the *Learning Preference Scale - Students* (LPSS). Developmental work on an early version of the LPSS (Form B) has demonstrated factorial validity, internal consistency and test-retest stability (Owens and Straton, 1980). In the current version of the LPSS (Form C), there are 36 items, brief statements about a feature of learning by co-operating with others, competing with others, or working alone (Barnes, Owens, Straton, 1978). Items referring to each of these learning modes are content-matched in 11 groups and one additional group contains unmatched items. Each content group, therefore, contains three matched items and each preference subscale in the LPSS, therefore, is composed of twelve items. Students respond to each item by indicating how 'true' or how 'false' the statement is for them. A 4-point answer scale is used, with the response categories 'completely true', 'more true than false', 'more false than true', and 'completely false'. Three of the twelve items in each subscale are expressed in negative phrasing to counteract the acquiescence effect. Numerical values are assigned to the answer on a 4-3-2-1 basis, with 4 representing the strongest preference. Three main preference subscale scores (min. 12, max. 48) are calculated for each student, indicating strength of preference for co-operative, competitive and individualised learning situations. In addition, two involvement indices are calculated. Combined involvement is obtained by adding the co-operative and competitive subscale scores; this is an indication of desire for contact with others during the learning process. Co-operative involvement is obtained by subtracting the competitive subscale score from the co-operative score; this is an indication of the relative strength of the co-operative preference within the general desire for contact with others in learning.

Reliability of the three subscales has been assessed by means of Cronbach & coefficients (Table 1). The calculations indicate a substantial

degree of internal consistency for each of the subscales both in the initial instrument and in its revised form.

Table 1
**Reliability Data (Cronbach) for the Co-operative, Competitive,
and Individualised Learning Preference Subscales of the LPSS**

Form	Grade Level	LPSS Subscales		
		Co-operation	Competition	Individualised
Form B 42 items (N = 1,643)	Overall	0.81	0.66	0.74
	Years 4-6 (N = 697)	0.67	0.64	0.68
	Years 7-9 (N = 597)	0.70	0.72	0.72
	Years 10-11 (N = 349)	0.71	0.71	0.64
Form C (N = 1,814)	Overall	0.73	0.71	0.68
	Years 5-6 (N = 545)	0.73	0.69	0.68
	Years 7-9 (N = 502)	0.74	0.72	0.68
	Years 10-12 (N = 747)	0.74	0.73	0.68

This consistency does not vary noticeably in comparison of students in grouped school years (upper primary, lower secondary, upper secondary).

SAMPLE

The sample of students for the initial phase of the study (Time 1) was drawn from one state primary school and a neighbouring high school selected from each of four separate suburbs in the western metropolitan area of Sydney. All schools were co-educational and comprehensive, and the group provided a population with a broadly representative socio-economic background and with a relatively low non-English-speaking migrant population. In all, 1,814 students responded to the LPSS at grade levels ranging from Year 5 to Year 12. In the smaller primary schools, all students in a year were tested; in the larger high schools, classes were selected in each year and low ability remedial classes were avoided.

The retesting in the second phase of the study (Time 2) required locating as many of the original sample as could be found in the four high schools. Naturally, all the students tested previously in the four primary schools had proceeded to high school by this time, most of them to the neighbouring schools in which the initial testing had been done. In all, complete data were compiled from the two testing occasions for 779 students.

PROCEDURE

On both testing occasions, the data were gathered personally by the author and two research assistants in a series of visits to the schools. On the first occasion (Time 1), the testing was carried out during the first term of the school year (April) as part of a much larger research programme that required repeated visits to the schools later during the year. On the second occasion, two years later (Time 2), the testing occurred during the second term of the school year (June) with no further visits foreshadowed. For 84 students at Time 1 (11% of the sample), data were obtained during the second term of the school year (August). Therefore, for most of the sample, the elapse time between testing occasions was two years and two months, leaving a smaller number with one year and ten months. All computations and analyses were carried out by procedures given in the *Statistical Package for the Social Sciences* (SPSS; Nie *et al.*, 1975; Hull and Nie, 1981) as adapted to the Cyber 825 computer in the University of Sydney.

RESULTS

Data were gathered on two occasions from boys and girls in six primary and secondary school years. In processing the data, the SPSS procedure used was the Multivariate Analysis of Variance (MANOVA) applied to repeated measures experimental design since the same observations were made twice for each subject. The result is a 6 (School Year) $\times$ 2 (Sex) $\times$ 2 (Time) MANOVA analysis. In the following description of results, significant findings $p < .05$ are selected for comment. Findings representing interesting trends listed in the MANOVA tables $.05 > p < .10$ are not commented upon until the subsequent section on discussion.

MAIN SUBSCALE SCORES

In the analysis of preferences for co-operative learning (Tables 2 and 3), girls show a stronger orientation to co-operative learning than boys both at Time 1 and at Time 2. Students at Time 2 are more inclined toward co-operation than they were originally at Time 1.

In preferences for competitive learning, boys show a stronger orientation than girls on both testing occasions. In addition, there are marked increases in competitive learning preferences with school year. In preferences for individualised learning, the only significant finding is that the orientation is stronger at the time of the initial testing than at the later testing.

COMPUTER INDEX SCORES

The Co-operative Involvement index scores (Co-operative minus Competitive) is an indication of the relative strength of co-operative and com-

Table 2
Mean Scores and Standard Deviations for the Co-operative, Competitive and Individualised Subscales (LPSS) for
Two Testing Occasions

Year	Sex	Sample size N	Co-operation				Competition				Individualisation			
			Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
5	(7)	141	35.2	6.8	37.4	5.2	34.1	6.1	34.5	5.8	35.4	6.7	34.1	6.3
	Boys	66	33.9	7.1	36.2	5.5	34.3	6.0	35.1	5.7	36.1	6.8	34.6	7.1
	Girls	75	36.5	6.3	38.4	4.9	34.0	6.3	33.9	5.9	34.8	6.6	33.8	5.5
6	(8)	152	36.8	5.0	37.6	5.7	35.0	5.9	35.2	5.3	34.6	5.7	33.3	4.8
	Boys	78	35.8	4.9	36.6	6.4	35.3	5.9	35.2	5.5	34.8	5.7	33.2	4.5
	Girls	74	38.0	4.9	38.6	4.8	34.7	5.8	35.3	5.2	34.3	5.9	33.5	5.1
7	(9)	198	37.3	5.6	37.4	5.6	36.0	5.4	36.3	6.3	34.6	5.6	33.3	5.9
	Boys	99	36.8	5.6	36.3	5.3	36.2	5.3	37.1	6.4	34.7	5.5	32.8	5.5
	Girls	99	37.9	5.5	38.5	5.6	35.8	5.5	35.5	6.1	34.5	5.8	33.8	6.2
8	(10)	68	36.5	5.6	36.7	5.5	35.8	4.9	36.7	5.9	34.4	5.8	35.5	5.4
	Boys	39	36.7	5.4	35.4	6.4	35.9	4.3	38.6	5.9	34.5	4.7	35.8	4.9
	Girls	29	36.3	5.8	37.6	4.6	35.8	5.5	35.3	5.6	34.3	6.5	35.3	5.9
9	(11)	101	37.3	5.0	37.4	6.6	36.6	5.9	36.9	5.8	34.7	5.6	33.5	6.1
	Boys	54	36.7	5.1	37.2	6.7	38.4	5.7	37.6	6.0	35.2	5.5	33.0	6.9
	Girls	47	38.1	4.7	37.7	6.5	34.7	5.5	35.9	5.4	34.0	5.7	34.0	5.0
10	(11)	119	38.0	5.3	37.8	4.9	37.0	5.7	37.6	5.9	35.0	4.8	34.9	5.1
	Boys	52	36.6	5.4	36.9	5.2	38.8	5.2	38.5	5.4	35.8	4.5	35.2	4.9
	Girls	67	39.0	5.1	38.4	4.6	35.7	5.7	36.9	6.2	34.5	5.0	34.6	5.2

Table 3

School Year x Sex x Time MANOVA's of the Co-operative, Competitive and Individualised Learning Preference Subscale Scores (LPSS)

Source	Co-operation				Competition			Individualisation		
	df	MS	F	P	MS	F	P	MS	F	P
Between Subjects										
Sex	1	480	12.4	< .01	497	10.9	< .01	23.1	< 1	ns
School Year	5	72.1	1.9	.10	316	6.9	.01	64.9	1.5	ns
Sex x Year	5	71.1	1.8	.10	62.5	1.4	ns	22.2	< 1	ns
Error _b	767	38.6			45.6			42.8		
Within Subjects										
Time	1	135	5.5	.02	29.8	1.5	ns	173	7.7	< .01
Time x Sex	1	79.3	3.2	.08	3.6	< 1	ns	38.5	1.7	ns
Time x Year	5	54.0	2.2	.06	10.1	< 1	ns	33.2	1.5	ns
Time x Sex x Year	5	14.1	< 1	ns	27.0	1	ns	1.5	< 1	ns
Error _w	767	24.9			20.4			22.4		

petitive preferences. On both testing occasions, the girls had significantly higher scores than the boys, indicating greater preference for co-operative rather than competitive learning. The Combined Involvement index score (Co-operative plus Competitive) is an indication of the desire for contact with others during learning (Table 4). This desire is significantly stronger at higher grade levels than at lower grade levels and is more noticeable at the time of later testing than at the earlier testing.

DISCUSSION

To facilitate comprehension of the statistical analysis, a set of graphs has been prepared (Fig. I-V) which display overall learning preference change between Time 1 and Time 2 across the range of school years and display separately the same data for girls and boys. Discussion of the statistically significant results proceeds against the background of these graphic displays. Trends and connections are more easily seen in this way. The implications of the findings form the final portion of the discussion.

Girls overwhelmingly express stronger preferences for co-operative learning than boys do. In 11 of the 12 School Year x Time groups (Table 4), the girls' mean is higher. For both sexes combined, scores at Time 2 are higher than scores at Time 1, especially in the Year 5-7 and Year 6-8 comparisons (Fig. Ia). This trend continues for girls in the Year 7-9 and Year 8-10 comparisons (Fig. Ib) but the trend is reversed for boys in these year groups (Fig. Ic). Generally, entry to secondary school is associated with an increase in preferences for co-operative learning. This trend is maintained by girls for all four years of the lower secondary program (Years 7-10) but in contrast, the boys' co-operative learning preferences decline between Year 7 and Year 10.

The preferences by boys for competitive learning are just as overwhelming as those by girls for co-operative learning. In 11 of the 12 School Year x Time groups, the boys' mean scores are higher than the girls'. Competitive preference scores increase steadily throughout the secondary school years (Fig. IIa). The differences between Time 1 and Time 2 are particularly strong for boys in the junior years at the stage of preparation for the School Certificate in Years 9-10. In comparison, however, the Time differences for girls do not occur until the senior years at the stage of preparation for the Higher School Certificate in Years 11-12 (Fig. IIb and IIc).

There is a general trend for fewer preferences for individualised learning between Time 1 and Time 2 (Fig. IIIa), especially for boys (Fig. IIIc). However, in the year 8-10 comparison which coincides with the School Certificate examinations, both boys and girls express stronger preferences for individualised learning (Fig. IIIb, IIIc).

Given the distinctly different sex preferences for co-operative and competitive learning noted above, it is no surprise to find that generally

Table 4
School Year x Sex x Time MANOVA's of the Co-operative Involvement Index and Combined Involvement Index (LPSS)

Source	df	MS	F	P	MS	F	P
Between Subjects							
Sex	1	3122	35.8	< .01	127	1.4	ns
School Year	5	153	1.8	ns	650	7.1	< .01
Sex x Year	5	44.5	< 1	ns	124	1.4	ns
Error _b	767	87.2			91.7		
Within Subjects							
Time	1	20.2	< 1	ns	237	6.2	.01
Time x Sex	1	4.3	< 1	ns	2.9	< 1	ns
Time x Year	5	64.5	1.7	ns	61.8	1.6	ns
Time x Sex x Year	5	75.9	2.0	.07	7.8	< 1	ns
Error _w	767	37.3			38.2		

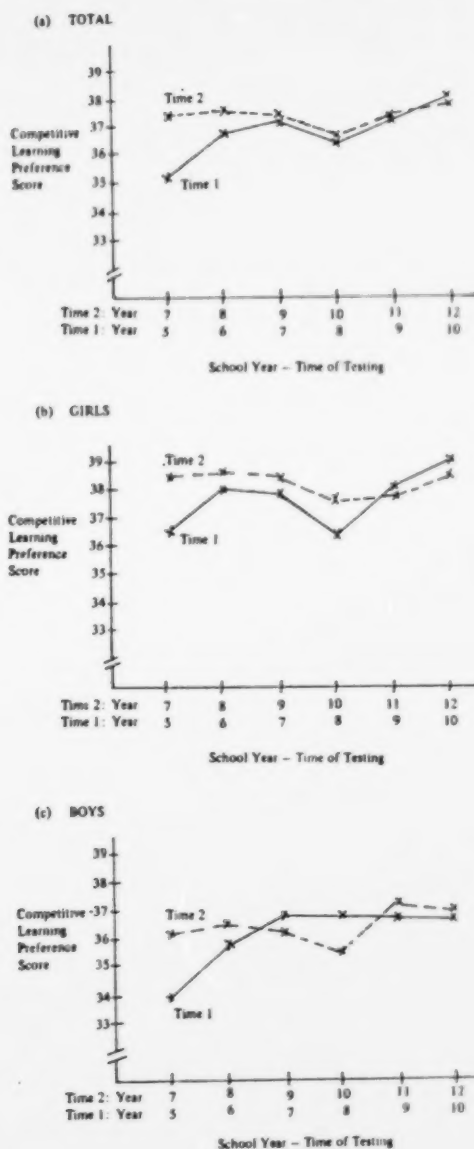
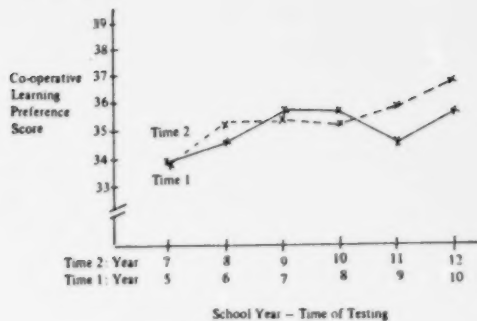
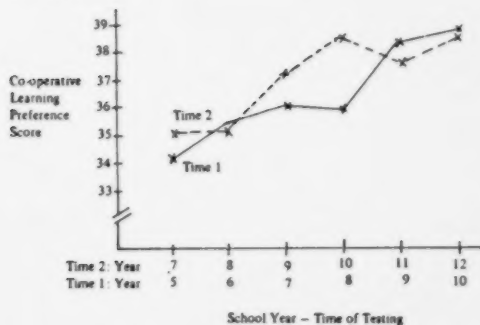


Figure 1: Co-operative Learning Preference Scores for Australian Primary and Secondary School Students Obtained Twice With a Two-Year Interval.

(b) GIRLS



(c) BOYS



(a) TOTAL

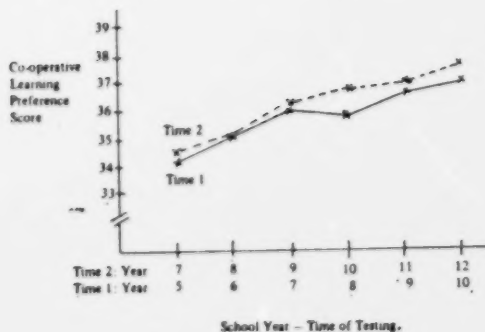


Figure II: Competition Learning Preference Scores for Australian Primary and Secondary Students Obtained Twice With a Two-Year Interval

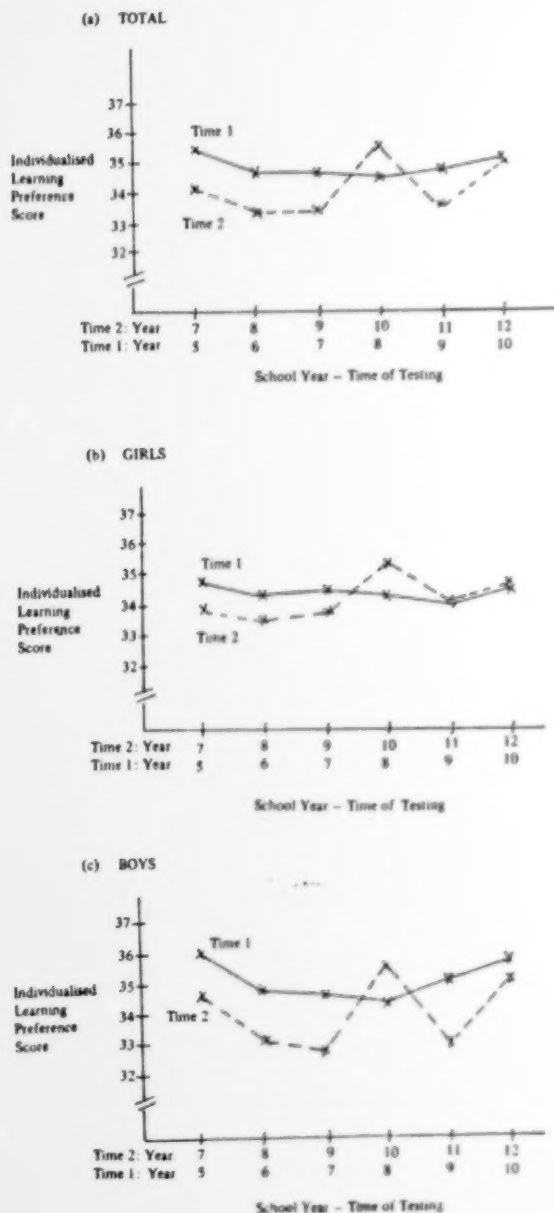


Figure III. Individualised Learning Preference Score for Australian Primary and Secondary School Students Obtained Twice With a Two-Year Interval

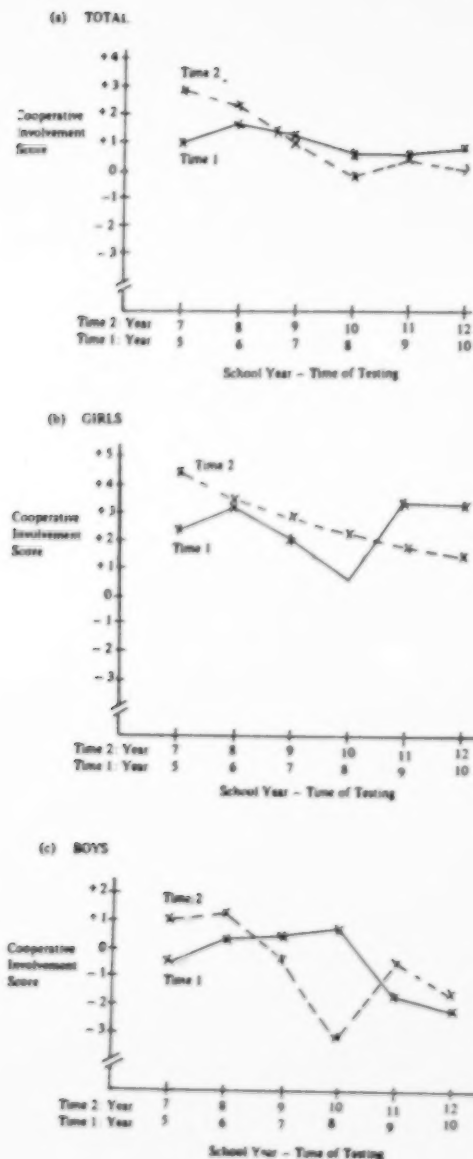


Figure IV: Co-operative Involvement Index Scores for Australian Primary and Secondary Students Obtained Twice With a Two-Year Interval

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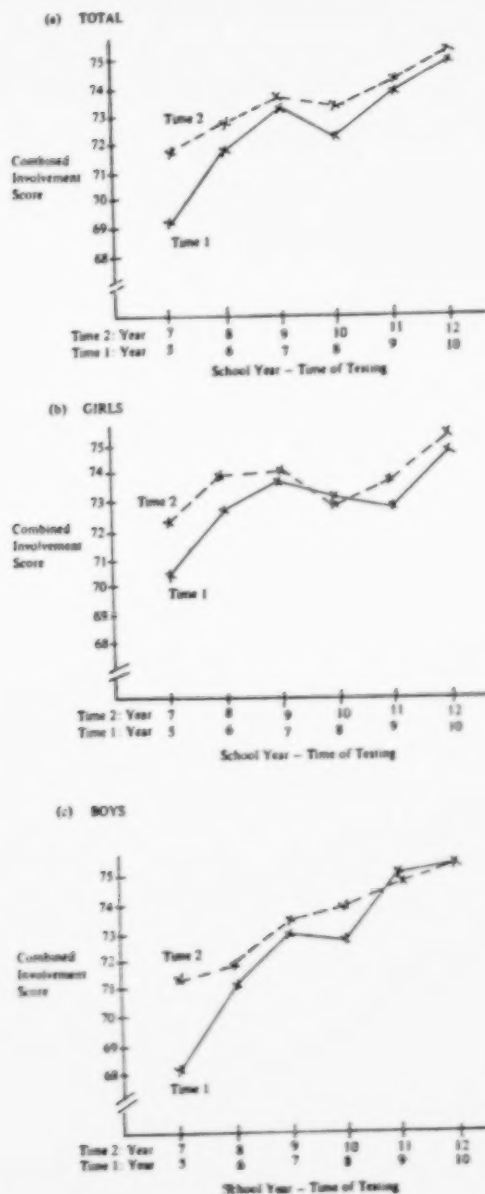


Figure V: Combined Involvement Index Scores for Australian Primary and Secondary School Students Obtained Twice With a Two-Year Interval

co-operative involvement is strongly favoured by the girls. There are opposite trends at work for the two sexes at two stages in their secondary schooling *g.* However, as girls approach the School Certificate examinations, they prefer competitive learning to co-operative learning but this preference is reversed in the final two years (Fig. IVc).

Combined Involvement scores rise steadily with year at school and are much stronger at Time 2 than Time 1. Girls' scores seem to reach the level at which they will remain by Year 8 (Fig. Vb). Boys' scores, on the other hand, rise with each successive year in high school due principally to the rapid increase in competitive learning preference (Fig. Vc).

Drawing the separate findings together, the following picture emerges of progression from primary through secondary schooling in a major city in New South Wales. In their primary school years, girls are more strongly oriented towards co-operative learning than boys are and this trend continues through high school. The senior years of high school and the preparation for the Higher School Certificate examinations (Year 12) dampen this enthusiasm somewhat. Boys, on the other hand, lose their enthusiasm for co-operative learning at least two years earlier, coinciding with preparation for the School Certificate examination (Year 10).

Preference for competitive and individualised learning are not necessarily connected with preferences for co-operative learning. It is neither conceptually valid to regard co-operation and competition/individualisation as opposite ends of the same dimension of behaviour nor have the items in the LPSS been written to force a choice between any two alternatives *i.e.* the three subclasses are independent of each other. Nevertheless, the competitive and individualised preferences expressed by the students present a marked contrast to those for co-operation. Overall, the level of competitive preferences increases steadily between primary school and the end of high school while the level of individualised preferences declines. Boys respond to the stress of the School Certificate with abruptly elevated preferences both for competition and individualised work; girls see the benefit of individualisation at this point but do not opt strongly for competition until the subsequent final two years of school.

Social commentators on the experience of secondary schooling remark on the overwhelmingly competitive nature of interpersonal contact among students in schools as they now exist. In the USA, for example, the Johnsons observe that:

... our society is filled with alienated children, teenagers, and young adults, yet within schools competitive and individualistic efforts are emphasized ... (and) ... current estimates are that over 85 percent of instruction within schools involves lectures, individualised seatwork, or competition where students are isolated from one another, forbidden to interact, and pitted against each other (1983).

We, in Australia, sometimes sit smugly by, watching analysts of cultures overseas, typically the Americans, tearing themselves to pieces while congratulating ourselves on having avoided the problem. An obvious premise of our own state education systems, however, is that only the 'winners' may proceed from year to year with any noticeable encouragement and the 'losers' are to be counselled to leave school as soon as they are able, and the earlier we identify who are to be the 'winners' and who are to be the 'losers', the better it is for all concerned (Wright and Headlam, 1976). In the words of R. Reed, a former senior administrator of education in Victoria, one of our largest states: 'Our secondary schools have become the most competitive institutions in Australia, compared with which the celebrated rate race of industry and commerce is like a picnic handicap for field mice'.

There is now ample research which demonstrates that the competitive/individualistic ethos in schools does not result in superior achievement nor in constructive social learning (Johnson *et al.*, 1981; Johnson *et al.*, 1983). Yet the traditional procedures of schooling continue with teachers and policy makers apparently oblivious to modern research.

The transfer from primary school to secondary school is a crucial event in the lives of most school children. Much has been made of the enormity of the changes in daily routine for a 12 year-old; large, crowded premises, numerous separate subjects, highly specialised subject matter, increased homework intimidation by older students, and strict and unpleasant relationships with teachers. Evidence in Australia, at least, is that on the surface, the general stress of the transfer may be less dramatic than formerly was supposed (Trebilco *et al.*, 1977) and the primary students' worst fears about the transfer are frequently not confirmed (Cotterell, 1979). At a covert level, however, the socialising process involved in high school entry is a powerful and pervasive one. Evans has described the process of integration for first-year high school students as a series of stages, each contributing directly to the next in the process (1983). First is the student's *overall satisfaction*, 'feelings of worth and competence in the new environment'. This contributes directly to identification, 'feeling at home in the school', and to *willingness to be involved*, purposeful participation in school activities. The outcome of these three stages during the first year is norm convergence, 'the adoption of values held by others in the environment, particularly those of others more advanced in the process of integration.' A basic 'norm' in high school, as is evident in this current research study and the others associated with it, is the acceptance of the competitive/individualistic ethos as both essential for the functioning of the school and effective in producing outcomes which help students meet their academic needs. Both of these grounds for 'norm convergence' can be questioned but that is beyond the scope of the present paper. What is now more obvious than ever is that the convergence has a different impact on boys than it does on girls. Boys accept the competitive norm much more

quickly than girls do in the first few years of high school while girls maintain the co-operative orientation of their younger years. This may be linked with the expectation by boys, especially that older students at high school are quite likely to tease, bully, and physically shove the younger students around (Cotterell, 1979). High school has the appearance of a jungle in which the aggressive survive and the meek do not. Competitiveness, therefore, is a survival skill.

It is not only the overall response to the norm of competition in which boys and girls differ, however. In the initial selection of school subjects for study and in the continued study of these subjects, it seems to be a worldwide phenomenon that girls avoid advanced or complex mathematics courses (Fennema and Sherman, 1977; Keeves, 1973; Walsh, 1979). It has been shown that mathematics is not seen as offering opportunities for co-operative learning and that boys particularly enjoy the sense of competitive learning than do teachers of other high school subjects (Owens, 1983c). In Australia, at least, these teachers are far more likely to be male than female. When the time comes for students to choose courses for further study in the senior years, girls – disinclined to favour competitiveness in learning, and faced with male teachers as well as subject matter that seems orientated to competitiveness – opt out and transfer their enthusiasm to other subjects.

The implications and alternatives for the makers of educational policy have been presented elsewhere (Owens, 1983c). It seems clear, however, that the pervasive competitiveness of secondary schooling has a negative impact on girls generally but, in particular, on their selection (and avoidance) of certain subjects which may eventually limit their job choices and entry to certain professions after leaving school. In this way, male domination of key functions in society is perpetuated and 'equality of opportunity' seems somewhat hollow as a philosophical tenet of public policy.

1. In all Australian states, the standard term 'year' has been adopted in preference to 'grade' to refer to a level of schooling in primary and secondary education.
2. Primary schooling in New South Wales is seven years in length, beginning with a kindergarten year when the child is five years old.

Year												
	1	2	3	4	5	6	7	8	9	10	11	12
	Secondary School											
Kindergarten	Infant School		Primary School				School Certificate			High School Certificate		

The transition from infants classes to primary classes occurs within the same school grounds but the transfer to secondary school is a major relocation into different buildings entirely with a group of students drawn from several primary schools. Secondary schooling has two major sections, four years of lower sec-

dary education for all students (to year 10) and two additional upper secondary years for some (currently about 50% of the Year 10 students continue with their education). The School Certificate Examination (Year 10) is partly externally assessed (in all other subjects). The Higher School Certificate Examination (Year 12) is an external public examination. Tertiary institutions use the results as entry criteria to various faculties and programmes, and employers place great emphasis on the results in making decisions about whom to hire.

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